

Orbital Analysis for Near-Earth Objects
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For recently discovered Near-Earth Objects (NEO's), two body computations can be used to determine the minimum distance between the object's orbit and that of the Earth. One can then determine quickly whether or not a NEO is a potential near-term **threat** to the Earth. However, one must follow this preliminary orbit analysis with perturbed computations of the object's future motion and predict actual close Earth approaches along with the **uncertainties associated** with these close approaches.

By using a number of NEO'S as examples, we have investigated the relationship between the object's observation history and the length of **the** interval over which close approaches **can** be accurately predicted. The length of this interval depends strongly upon the object's existing observation interval, whether or not radar data are available, and the planetary perturbations it will suffer. Moreover, the uncertain modeling of cometary **outgasing** effects **severely limits** the interval over which close approaches can be accurately predicted.